

List of Claims

1. (currently amended) A power system comprising:
an electric motor being operable to power a hydraulic pump;
at least one hydraulic cylinder being fluidly connected to the hydraulic pump and defining a first fluid volume and a second fluid volume separated from one another via a moveable plunger;
a variable displacement hydraulic motor being fluidly connected to at least between the first fluid volume and the second fluid volume defined by the hydraulic cylinder and being operable to power a generator; and
a power storage system operably coupling the generator to the electric motor.
2. (original) The power system of claim 1 wherein the power storage system includes a fuel cell, an electrolysis device and a hydrogen storage device.
3. (original) A work machine comprising a work machine body; and the power system of claim 1 being attached to the work machine body.
4. (original) The work machine of claim 3 including an implement attached to the work machine body; and
the at least one hydraulic cylinder being operably coupled to move the implement.
5. (currently amended) A power system comprising:
means for converting hydraulic power produced within at least one hydraulic cylinder to mechanical power via a variable displacement hydraulic motor fluidly connected between a first fluid volume and a second fluid volume of the hydraulic cylinder;
means for converting the mechanical power to electrical power;
means for storing the electrical power;
means for supplying an electric motor coupled to a hydraulic pump with the stored electrical power; and

means for supplying hydraulic fluid, via the hydraulic pump, to the at least one hydraulic cylinder.

6. (original) The power system of claim 5 wherein the means for storing electrical power includes a fuel cell, an electrolysis device and a hydrogen storage device.

7. (original) The power system of claim 5 wherein the at least one hydraulic cylinder being operably coupled to move a work machine implement.

8. (currently amended) A method of operating an electrical power system, comprising the steps of:

powering a generator, at least in part, by converting hydraulic power produced within a hydraulic cylinder to mechanical power via a variable displacement hydraulic motor fluidly connected between a first fluid volume and a second fluid volume of the hydraulic cylinder;

storing electrical power created by the generator within a power storage system;

powering a hydraulic pump, at least in part, by supplying electrical power from the power storage system to an electric motor coupled to the hydraulic pump; and

supplying hydraulic fluid to the hydraulic cylinder, at least in part, by operating the hydraulic pump.

9. (currently amended) The method of claim 8 wherein the step of powering the generator includes a step of producing hydraulic power by retracting a plunger, which separates the first fluid volume from the second fluid volume, within ~~at~~the hydraulic cylinder.

10. (original) The method of claim 9 wherein the step of producing hydraulic power includes a step of controlling a speed of the retracting plunger, at least in part, by varying the displacement of the motor.

11. (original) The method of claim 8 wherein the step of storing includes a step of producing hydrogen within a reformer.

12. (original) The method of claim 8 wherein the step of storing includes a step of creating hydrogen and oxygen within an electrolysis device from electrical power generated by the generator.

13. (original) The method of claim 12 wherein the step of storing includes a step of absorbing the hydrogen in a hydrogen storage device.

14. (original) The method of claim 13 includes a step of powering a hydraulic pump includes a step of re-producing electrical power, at least in part, by combining the hydrogen with oxygen in a fuel cell.

15. (currently amended) A power system comprising:
a variable displacement hydraulic motor being configured to power a generator;
a power storage system being configured to store electrical power produced by the generator;
an electric motor being configured to power a hydraulic pump with the electrical power from the power storage system; and
a hydraulic cylinder being configured to receive hydraulic fluid from the hydraulic pump and to produce hydraulic power that drives the variable displacement hydraulic motor, which is fluidly connected between a first fluid volume and a second fluid volume of the hydraulic cylinder.

16. (original) The power system of claim 15 wherein the power system includes a fuel cell, an electrolysis device and a hydrogen storage device.

17. (original) The power system of claim 15 wherein the at least one hydraulic cylinder being operably coupled to move a work machine implement.